

Attachment B-2

Erosion Design Calculations

ATTACHMENT B-2

Evaluation of Erosion Potential Slag Processing Area Final Cover

Evaluation Using Revised Universal Soil Loss Equation Software

The erosion potential of the final cover at the Slag Processing Area was evaluated using the Revised Universal Soil Loss Equation (RUSLE) software developed by the USDA Agricultural Research Service (ARS) and the Natural Resource Conservation Service (NRCS). The RUSLE computes the average annual soil loss as:

$$A = R K L S C P$$

where A = average annual soil loss (tons/acre/year),
 R = rainfall-runoff erosivity factor,
 K = soil erodibility factor (tons/acre/year),
 L = slope length factor,
 S = slope steepness factor,
 C = cover management factor, and
 P = support practice factor.

Factor R is a function of the geographic location of the site; factor K is a function of the characteristics of the soil used for topsoil; factor LS (representing the combined effect of L and S) is a function of the landfill geometry; factor C is a function of the type of vegetative cover and its management; and factor P is a function of any additional erosion-reducing measures.

The basis for the input into the model is as follows:

- **L and S:** The steepest and longest slope of the proposed final cover exists along the eastern side of the slag area, where the cover slopes toward Shambaugh Run, at a rate of 16 feet vertically, over a distance of 120 feet horizontally. Accordingly, a side slope of 7.5H:1V and a slope length of 120 feet was used in the calculations.
- Indianapolis, Indiana, was chosen as the site location because it has the closest proximity to Kokomo, Indiana, among the available geographic locations in the RUSLE database. Data that Rusle2 uses to calculate the rainfall-runoff erosivity factor (R), is presented in Table 1.
- Analyses were performed using two types of grass cover: (i) tall fescue (not harvested) and (ii) dense grass (mowed).
- Analyses were performed using one type of topsoil, silt loam. Silt loam has a K value of 0.43, which corresponds to an available topsoil in the Kokomo area, based on

TABLE 1
Rainfall Runoff Erosivity Factor R, Indianapolis, Indiana

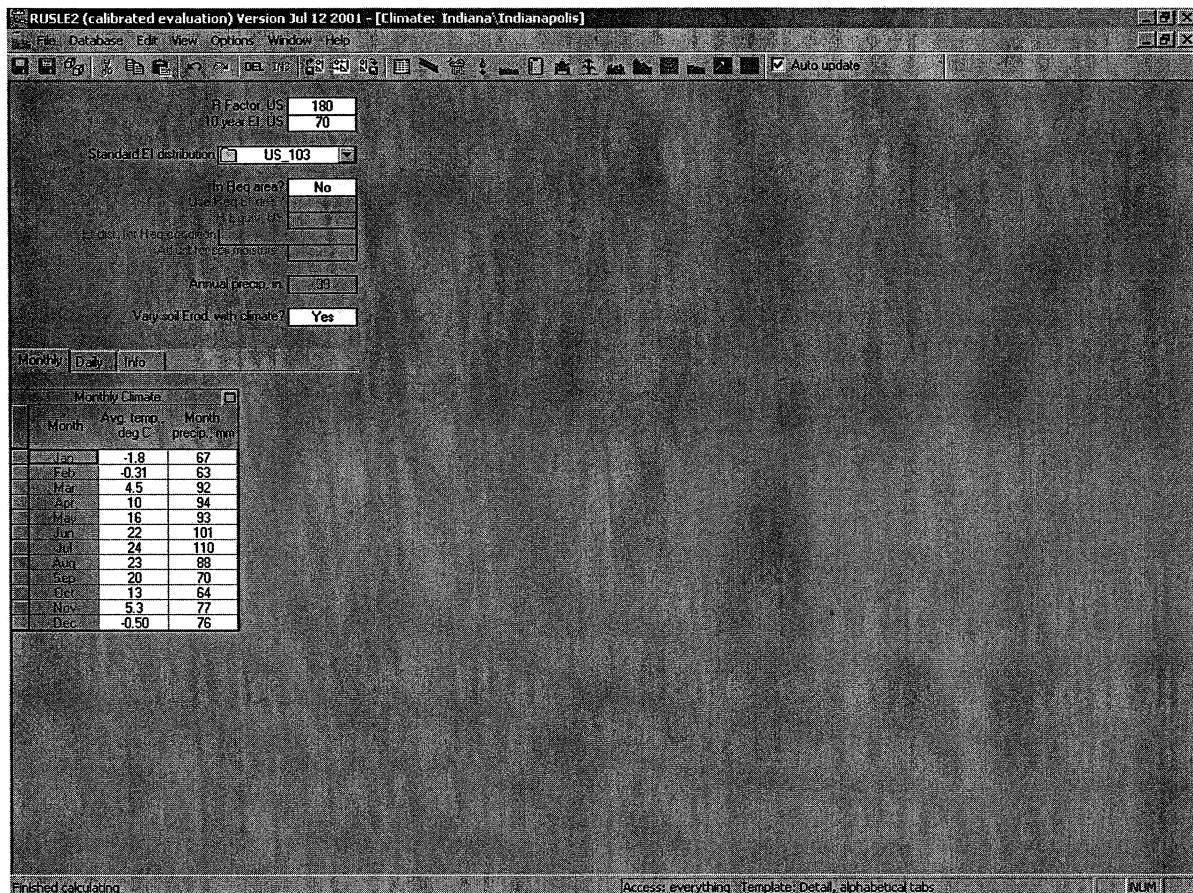


TABLE 3

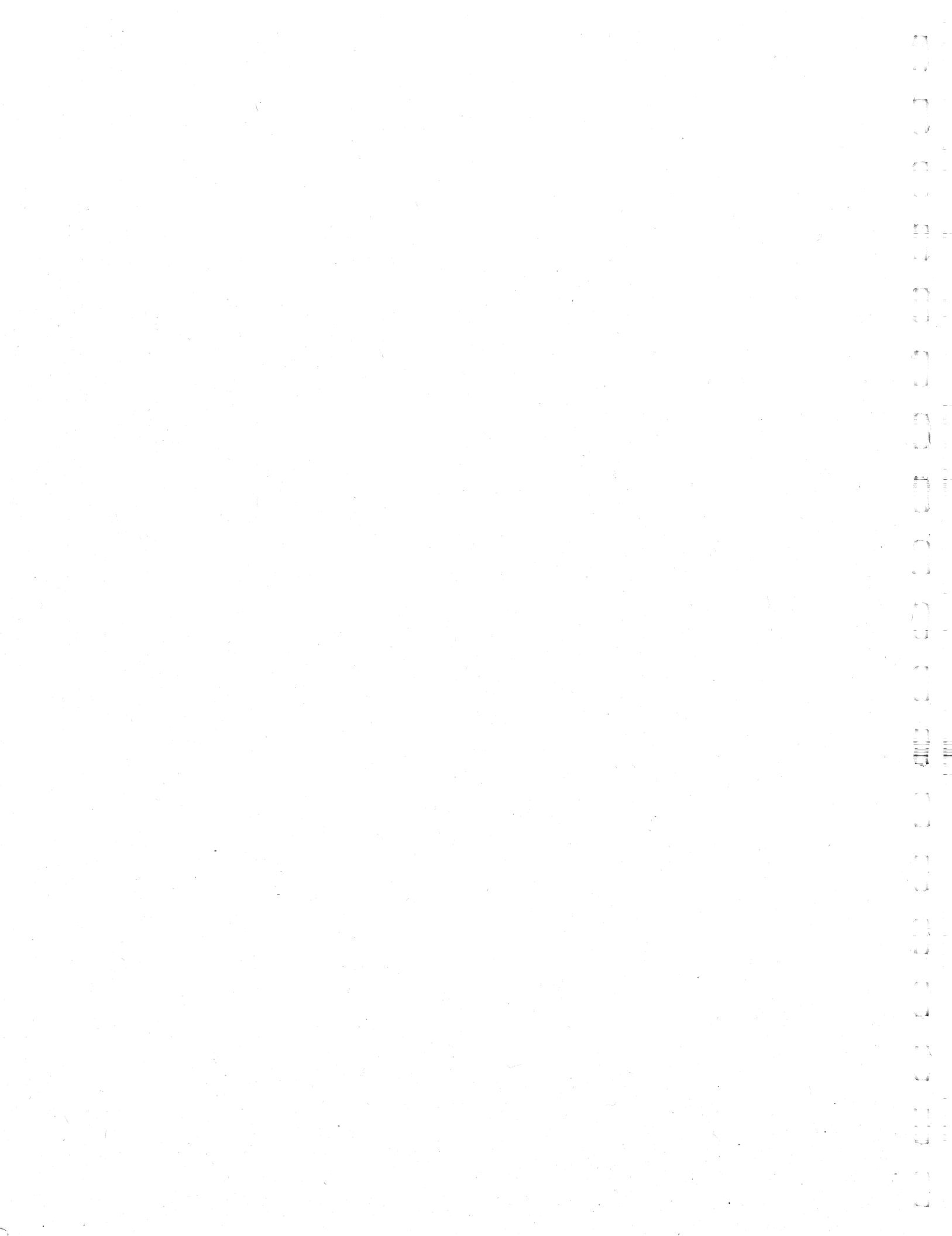
RUSLE Output for Dense Grass (Mowed) and Silt Loam Top Soil

Tract #	Kokomo, Indiana	Info	Location = Kokomo, IN; Rainfall from Indianapolis, IN used in Simulation. Side slope = 7.5H:1V, Vegetation = Dense Gras (Mowed); Topsoil = Silt Loam.				
Owner name	Continental Steel						
Field #	Slag Area Final Cover						
Compare management alternatives for a single hillside profile Compare individual hillside profiles Compute avg. soil loss for a field/watershed							
Location	Indiana\Indianapolis	Slope Topography					
Soil	...loam [1-m UM, subsoil, substr]	Segment	Steepness				
Length along slope, ft.	120	Length along slope, ft.					
Avg. slope steepness, %	14	14	120				
Management alternative table							
Temp. scenario	Base management	Residue burial level	General yield level				
Contouring	Strips/bare trace	Diversion/terrace	Surf. cov. values				
is	sediment ba	sediment ba					
Profile	Dense grass, mowed	Normal	Normal				
	ault	ault	ault				
	none	none	none				
	cover	cover	cover				
	0.26	0.28	0.20				
	0.26	0.28	0.20				
Location Indiana\Indianapolis							
Length along slope, ft.	120	Avg. slope steepness, %	14				
Detachment on slope, t/ac/yr		Soil loss erod. portion, t/ac/yr	0.28				
Soil loss for cons. plan, t/ac/yr	0.28	Sediment delivery, t/ac/yr	0.28				
Soil loss for cons. plan, t/ac/yr	0.28	Residue burial level	Normal				
General yield level	Normal	Surf. cov. after planting, %	Normal				
Surf. cov. values	Normal	Net K factor	1.43				
Net Ls factor	1.3	Net C factor	0.0019				
Net contour factor	1.00	Net ridge factor	0.98				
Net ponding factor	1.00	Net subsurf. drainage factor, traction					
Crit. slope length, ft.	119	Crit. slope length, ft.					
Biomass summary	C subfactor by day	C subfactors by period	C subfactor by operation	Daily ridges/contouring	Daily erosion	Erosion by period	
Erosion by operation	Critical slope length	Hydrology	Management output by day	Management output by period	Residue values	Roughness	
Soil output by day	Hyd. system daily runoff, sed. in, sed. out	Hyd. system net impact on sed. dist.	Hyd. system daily impact on sed. dist.	Visuals	Info		
Soil	Topography	Management	Supporting practices	Diversion/terrace, sediment basin	Align of oper. on segments	Biomass by layer	
Slope Management							
Segment	Management	Man horiz. length, ft.	Is this a rotation?	Length, yr.	Man align. years offset	Man soil loss, t/ac/yr.	Sed. del. t/ac/yr.
1	Dense grass, mowed	119	No	1	0	0.28	0.28



Appendix C

Slope Stability Calculations



Slope Stability Evaluation – Slag Processing Area

PREPARED FOR: File

PREPARED BY: Heather Ziegelbauer

DATE: May 20, 2004

The soils and fill materials at the Slag Processing Area have existed in their current configuration for several years. The slopes near Wild Cat Creek vary in steepness across the site and have shown to be stable in the past. The proposed final grades are at a lower elevation and will generally have flatter slopes than the current site conditions; this will unload the slopes and reduce the driving forces making the slopes more stable than current site conditions.

The stability of soil cover, slopes and foundation materials during a flooding event at the regraded slag processing area have been evaluated, as summarized in this memorandum. Boring/well logs for three wells that were installed in the Slag Processing Area (UA-16, UA-17, and UA-25) were referenced for information on the subsurface materials in this area. The blow counts and material descriptions on the logs were used to estimate the material layering and soil properties. Following are the major materials that have been encountered in the subsurface, or will be present after the regrading activities:

- New proposed cover material – It is planned that 2 feet of cover (1.5 feet of general fill and 0.5 foot of topsoil) will be placed over the slag and lead soil. All of the cover material will be placed above the 100-year flood elevation.
- Fill – The fill material will be excavated and regraded to a maximum elevation of 794, extending to an approximate elevation of 775 (+/-). It is generally made up of varying amounts of clay, silt, and sand, with some cinders, slag, and debris. The fill is generally moist and dense to very dense or stiff to hard. At one borehole location (UA-25), approximately 15 feet of soft clay fill was encountered under the dense granular fill, over bedrock.
- Alluvial deposits – Alluvial deposits ranging from 1 to 4 feet thick lie below the fill. The deposits are fine to coarse dense sand material.
- Weathered Kokomo Limestone – The weathered dolostone is generally made up of sand and fragments of dolostone.
- Kokomo Limestone – The fractured dolostone is assumed to be competent and will not contribute to potential slope instability.

Table 1 shows the material properties assigned to the above materials, based on observations from boring/well logs. A variety of fill material properties were modeled as three separate cases, to evaluate effects of the range in possible fill properties on slope stability.

- Case 1: Firm to stiff cohesive fill (undrained shear strength $[Su] = 2000 \text{ psf}$)
- Case 2: Dense coarse-grained fill (friction angle = 34 degrees)
- Case 3: 8 feet of soft clay fill ($Su = 700 \text{ psf}$), under dense coarse-grained fill (friction angle = 34 degrees)

Cases 1 and 2 model the variability in materials observed in Boreholes UA-16 and UA-17. Case 3 models the soft soil observed at borehole UA-25. Actual fill layering and properties are expected to vary significantly across the slag processing area, as observed in the three boreholes. Note that the depth of Wild Cat Creek was estimated to be 2 feet deep and may also vary. An Su of 700 psf for the soft materials in Case 3 is based on a factor of safety (FOS) of 1.0 against failure of the existing fill profile under current conditions near borehole UA-25.

TABLE 1
Soil Data Used for Analysis

Soil Type	Moist Unit Weight (pcf)	Saturated Unit Weight (pcf)	Undrained Shear Strength (Su , psf)	Drained Friction Angle (degrees)
Cover—General Fill	132	140	0	26
Fill				
Case 1	125	133	0	34
Case 2	125	133	2,000	0
Case 3 (granular/cohesive)	125	133	0/700	34/0
Alluvial Deposits/ Weathered Limestone	122	132	0	35

Groundwater and surface water elevations were modeled to reflect flood conditions that may occur at the site (the 100-year flood condition). Two groundwater/surface water conditions were evaluated for each of the three fill soil property cases described above:

- Condition 1: Groundwater and creek water elevation of 786
- Condition 2: Groundwater elevation of 786 back from the slope, and creek water elevation of 780. Groundwater elevation near the slope transitions to creek water elevation at a 6H:1V slope.

Condition 1 reflects groundwater/surface water elevations during the peak flood stage. Condition 2 reflects a rapid drawdown of surface water elevation within the creek, with limited opportunity for groundwater pressures to dissipate.

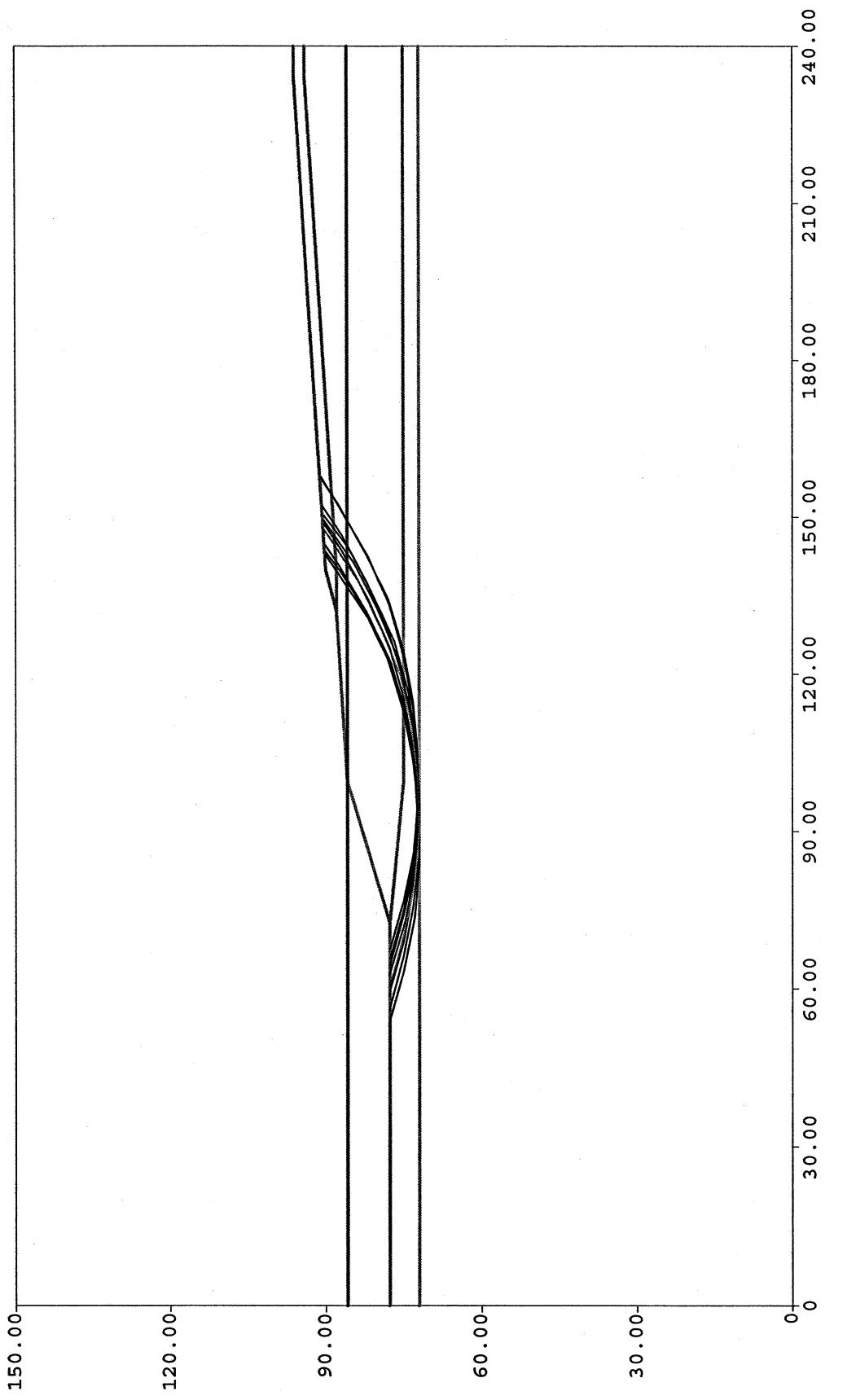
Stable Version 1.2, software distributed by the University of Wisconsin-Madison, was used to calculate the slope stability. The circular Modified Bishops method was used to evaluate all three cases, and an additional block analysis was completed for Case 3; all cases were evaluated for both of the groundwater conditions indicated above. The smallest factor of safety result for each case is shown in Table 2, below. The following attachments are plots of

the graphical representation for each case, which also display the ten most critical failure surfaces (circular or block). An example output file for Case 1-1 and table summarizing the input data is also included. All factors of safety were greater than 2 and the results show the regraded slag processing area slopes are designed to withstand a 100-year flood event.

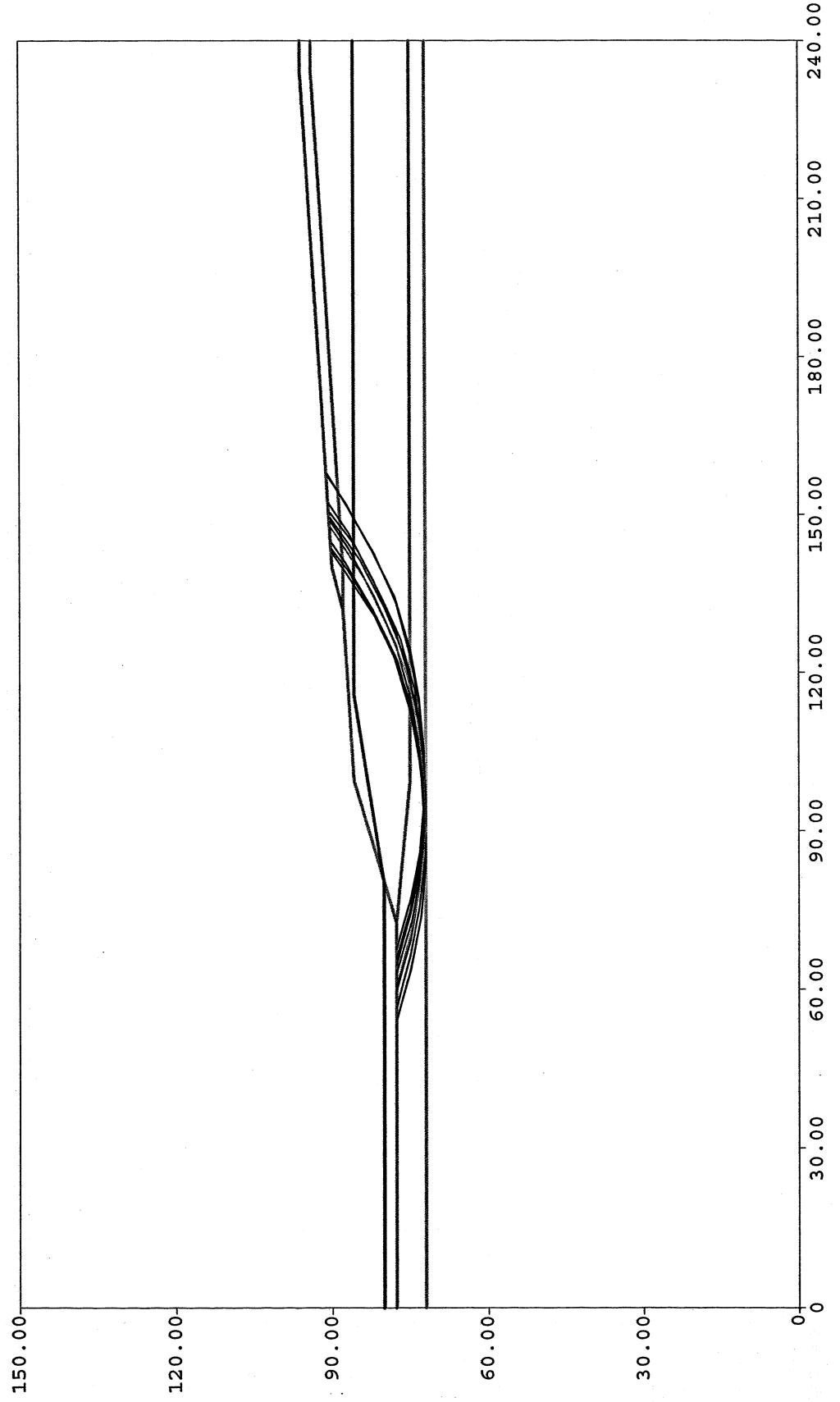
TABLE 2
Summary of Slope Stability Smallest Factor of Safety Results

Case	Condition 1	Condition 2
1 – Circular	8.32	8.32
2 – Circular	2.35	2.35
3 - Circular	4.12	4.54
3 - Block Analysis	4.24	4.24

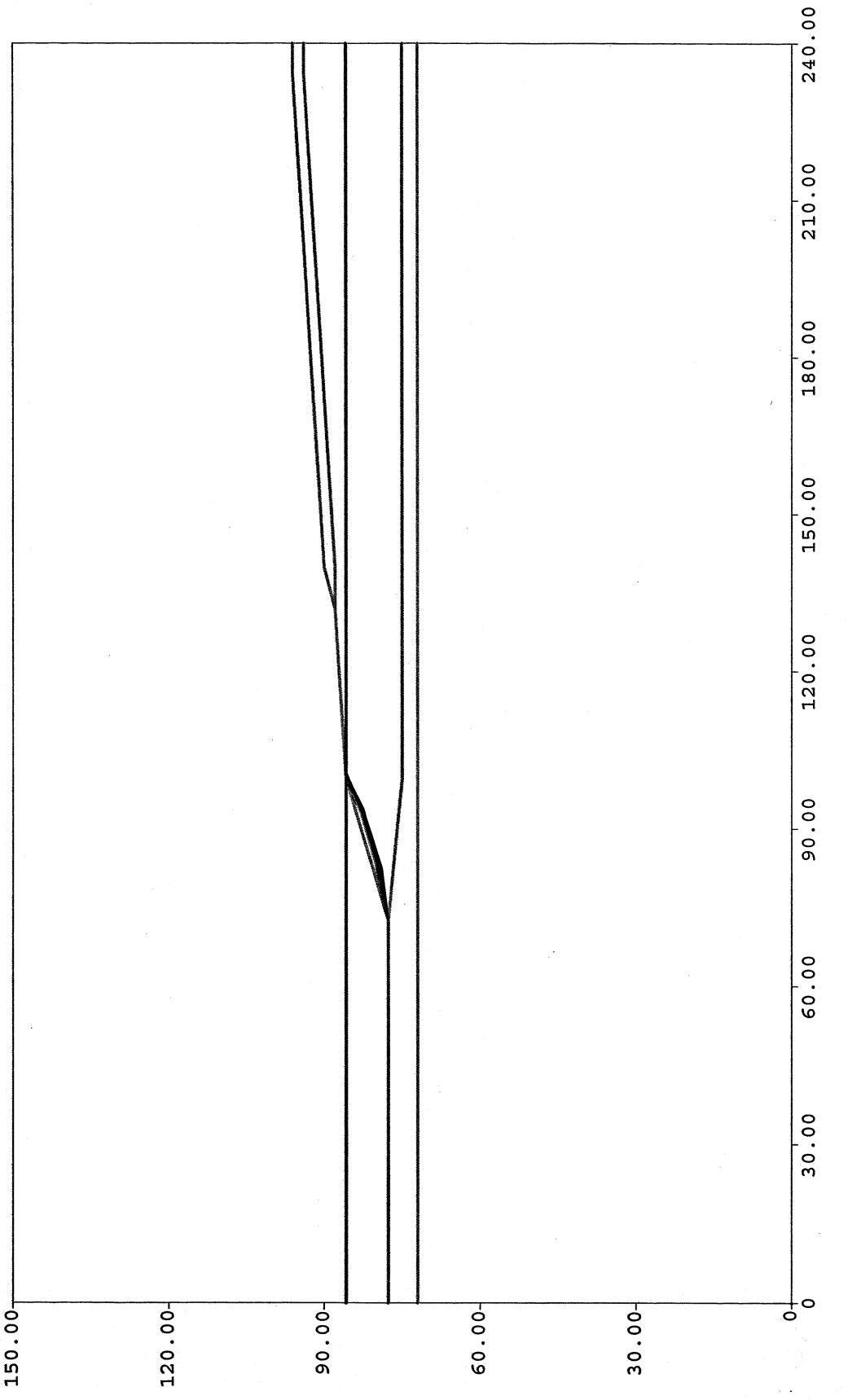
Slope Stability Case 1-1 $F_S = 8.32$



Slope Stability Case 1-2 $\text{FS} = 8.32$

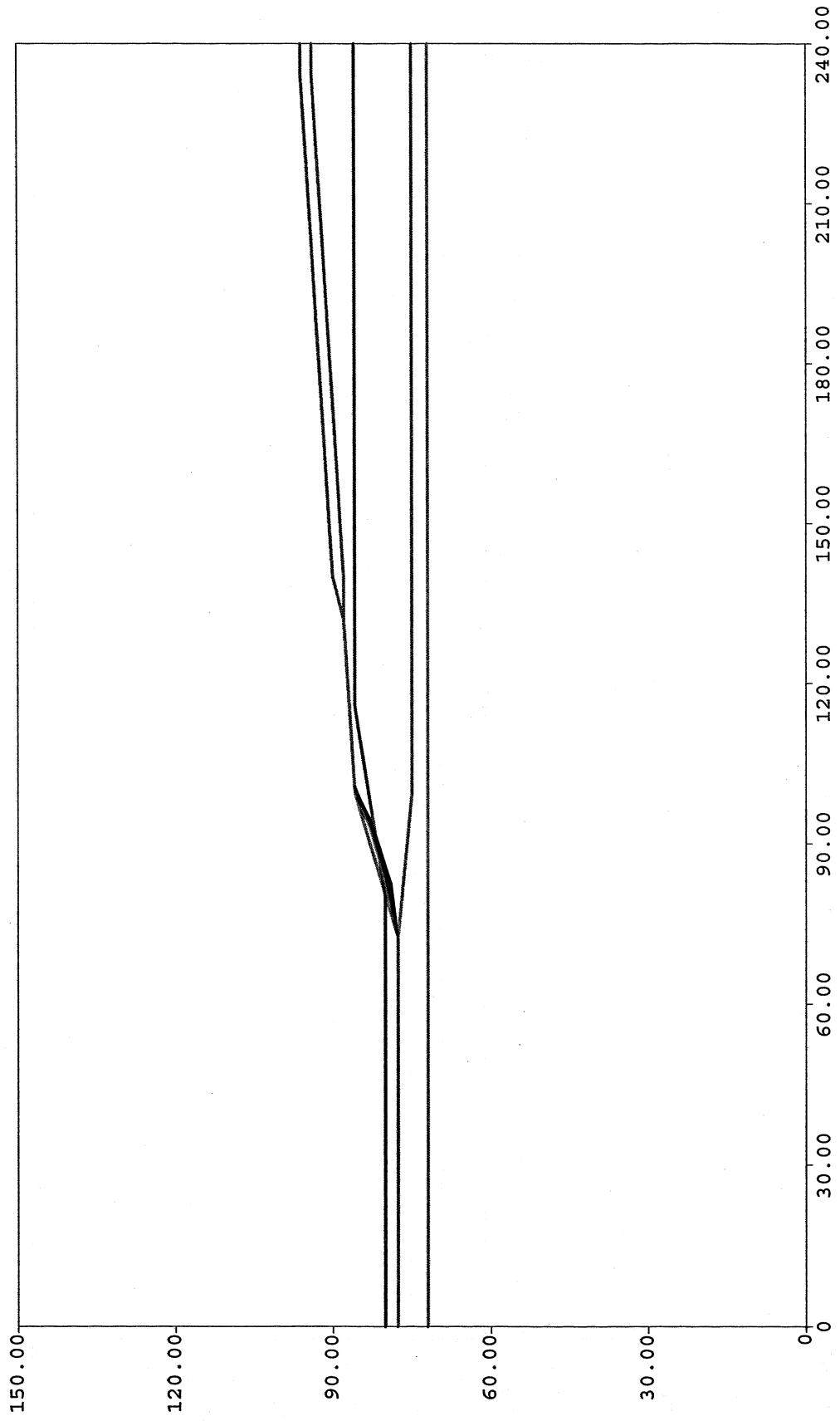


Slope Stability Case 2-1 $F_S = 2.35$

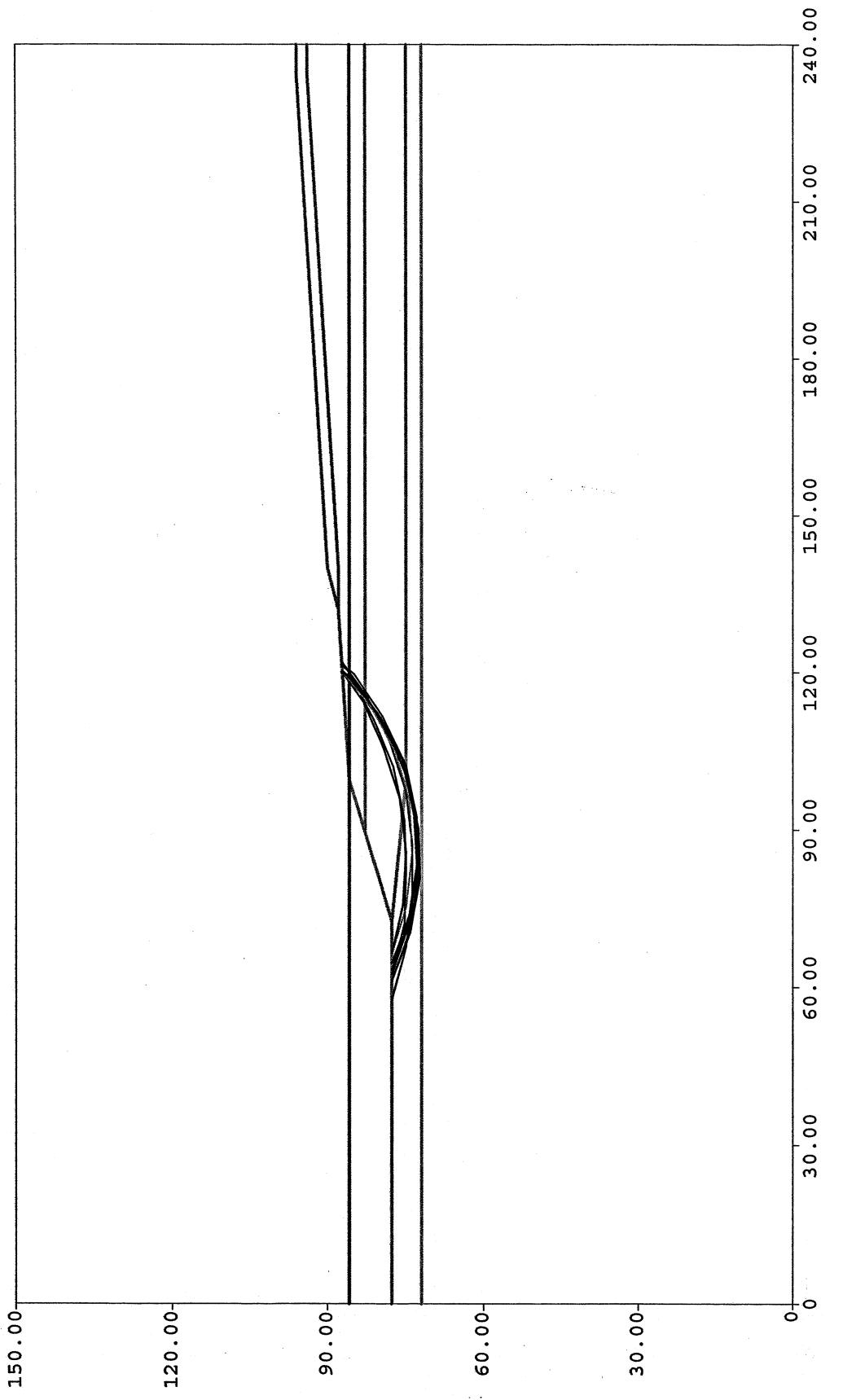


Slope Stability Case 2-2

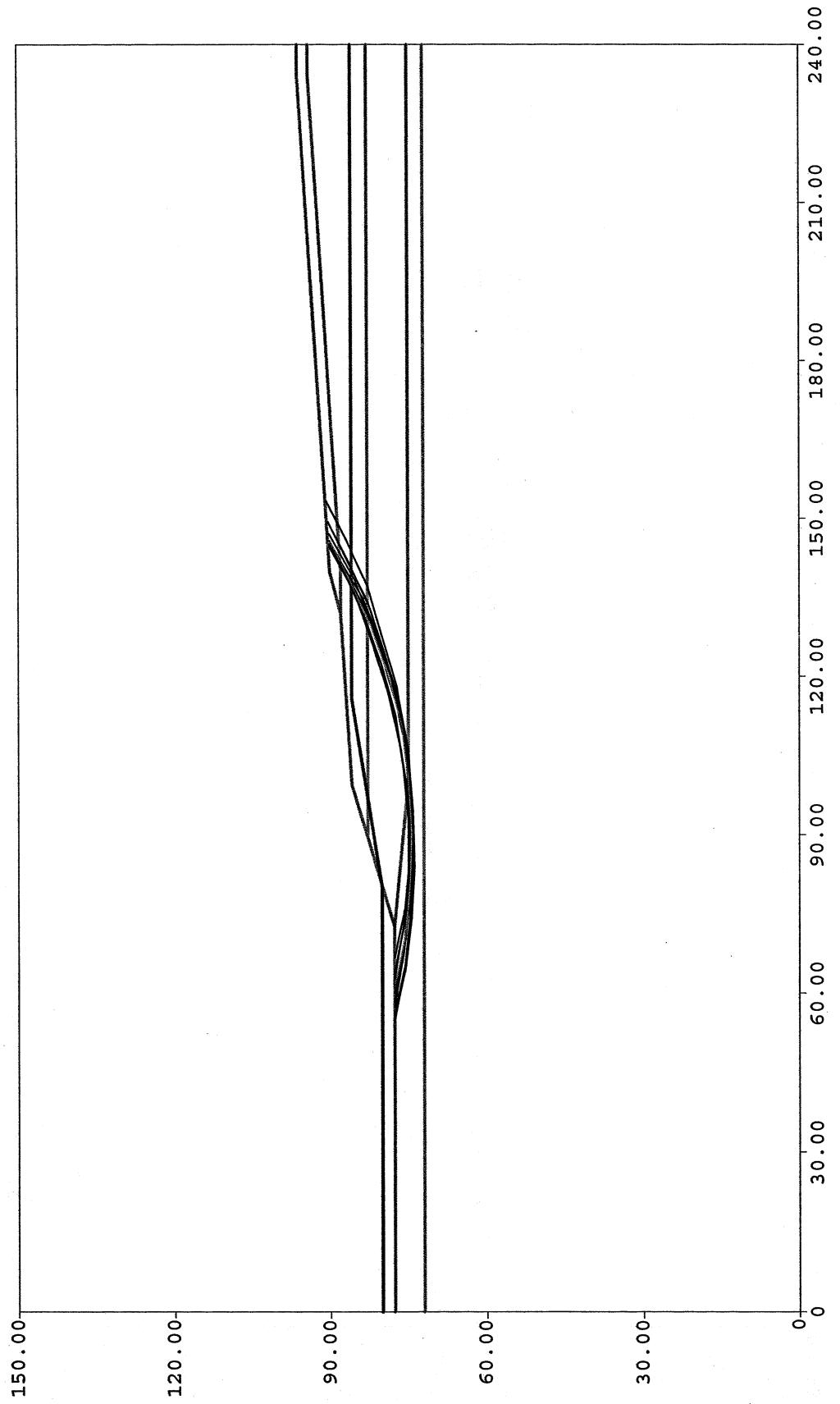
$$FS = 2.35$$



Slope Stability Case 3-1
 $F_S = 4.12$

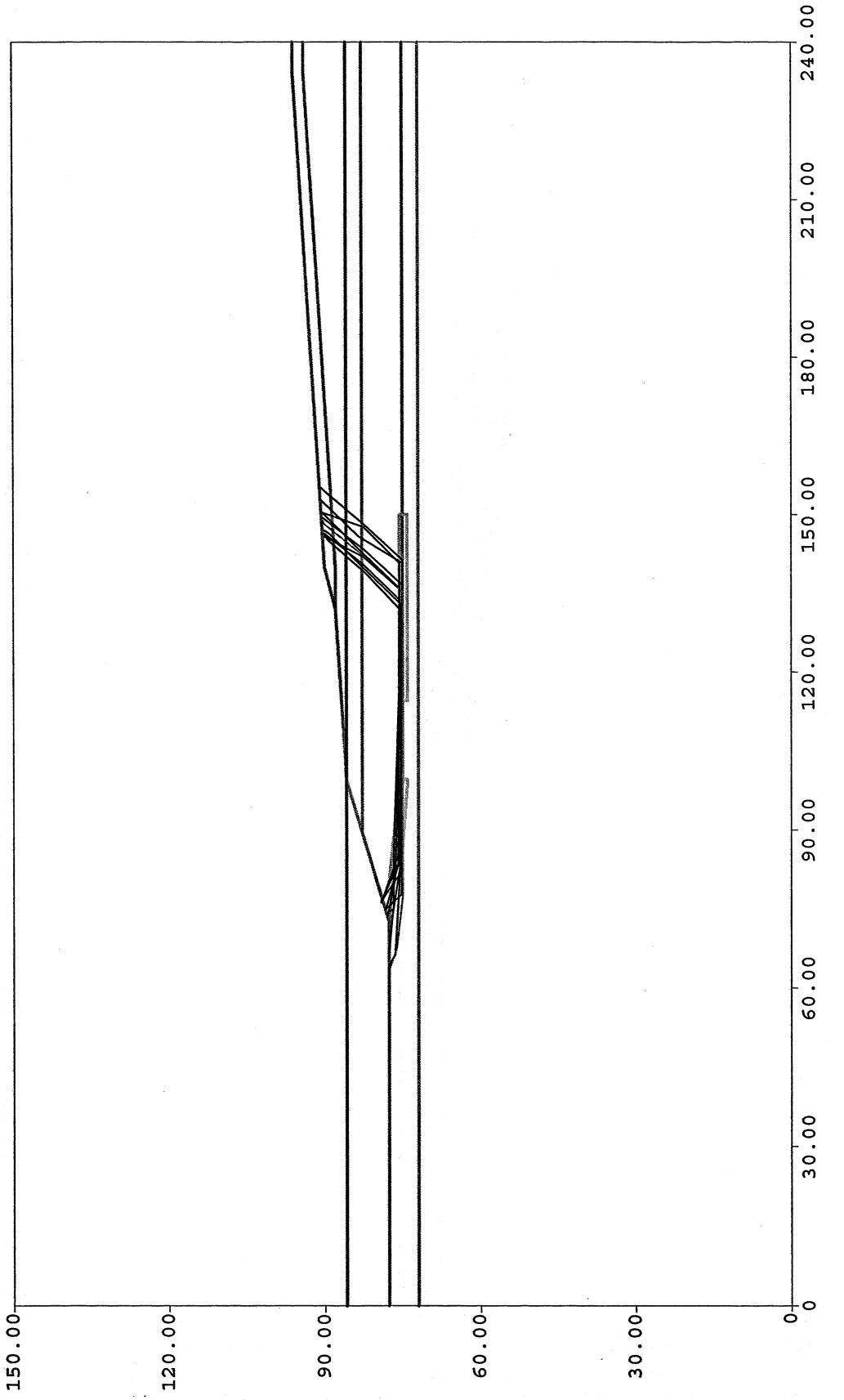


Slope Stability Case 3-2 $\text{F} \leq 4.54$



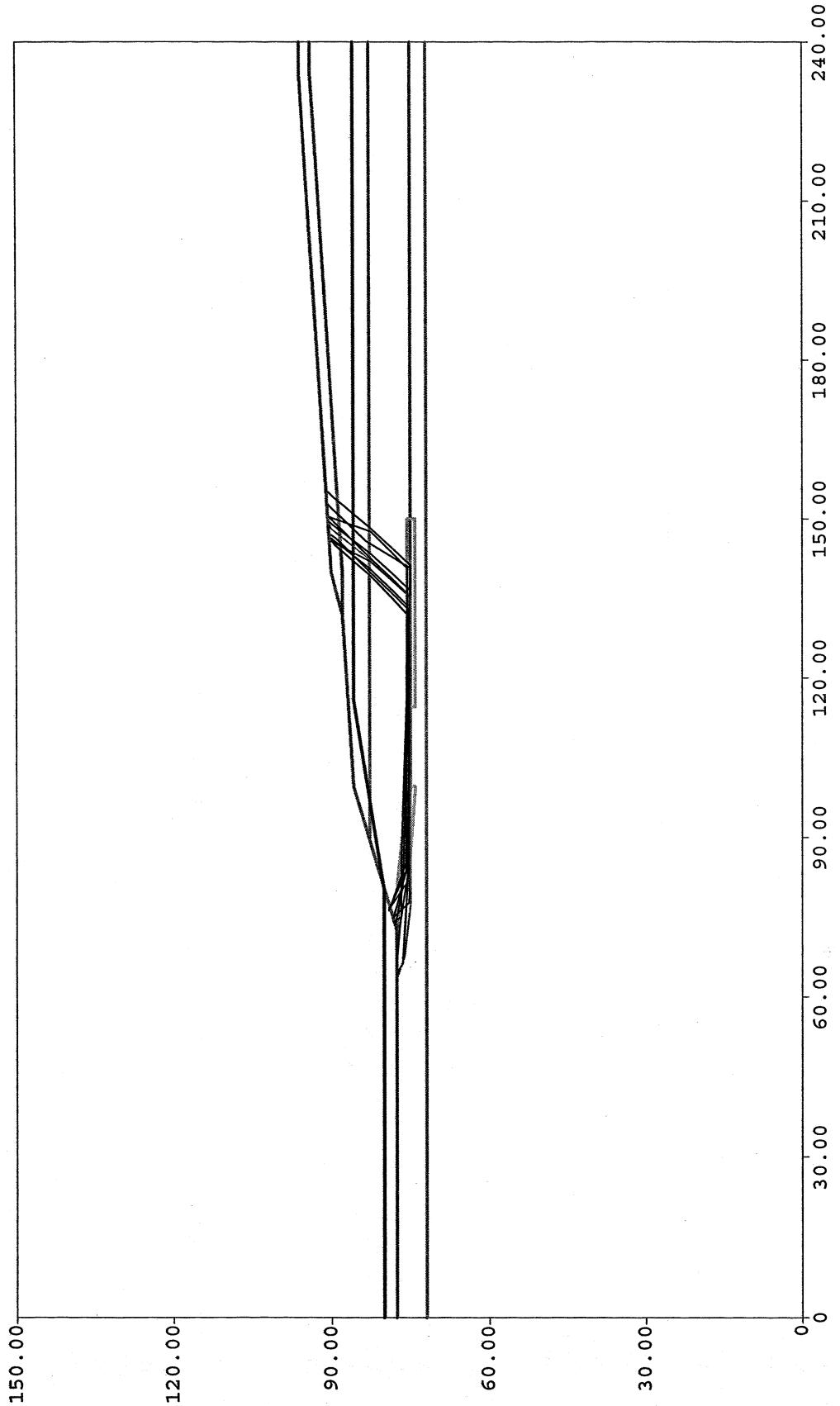
$\text{FS} = 4.24$

Slope Stability Case 3-3 Block Analysis



$FS = 4.24$

slope stability Case 3-4 Block Analysis



EVALUATION Case 1-1 & 1-2

PROFILE DATA

Surface	x	y	x	y	soil
1	0	78	72.5	78	3
2	72.5	78	100	86	2
3	100	86	132	88	2
4	132	88	140	90	1
5	140	90	235	96	1
6	235	96	240	96	1
7	132	88	140	88	2
8	140	88	235	94	2
9	235	94	240	94	2
10	72.5	78	100	75	3
11	100	75	240	75	3

SOIL DATA

Soil	Moist Unit Weight	Saturated Unit Weight	Isotropic Strength Intercept (cohesion)	Isotropic Strength Angle (friction)	Pore	Pore	Piezometric	Soil Name
					Parameter	Pressure Constant	Surface	
1	132	140	0	26	0	0	0	Cover -General Fill
2	125	133	2000	0	0	0	0	Fill CL with some slag/debris
3	122	132	0	35	0	0	0	Alluvial Deposits SP

WATER SURFACE DATA at 786

Surface #	x	y
1	0	86
1	100	86
2	100	86
2	240	86

WATER SURFACE DATA at 780 and 786

Surface #	x	y
1	0	80
1	80	80
2	80	80
2	116	86
3	116	86
3	240	86

LIMITS

Surface	x	y	x	y	upward/downward
1	0	72	240	72	1

** PCSTABL6 **

by
Purdue University

modified by
Peter J. Bosscher
University of Wisconsin-Madison

--Slope Stability Analysis--
Simplified Janbu, Simplified Bishop
or Spencer's Method of Slices

PROBLEM DESCRIPTION Slope Stability Case 1-1

BOUNDARY COORDINATES

6 Top Boundaries
12 Total Boundaries

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)	Soil Type Below Bnd
1	.00	78.00	72.50	78.00	3
2	72.50	78.00	100.00	86.00	2
3	100.00	86.00	132.00	88.00	2
4	132.00	88.00	140.00	90.00	1
5	140.00	90.00	235.00	96.00	1
6	235.00	96.00	240.00	96.00	1
7	132.00	88.00	140.00	88.00	2
8	140.00	88.00	235.00	94.00	2
9	235.00	94.00	240.00	94.00	2
10	72.50	78.00	100.00	75.00	3
11	100.00	75.00	240.00	75.00	3
12	.00	.00	.00	.00	0

ISOTROPIC SOIL PARAMETERS

3 Type(s) of Soil

Soil Type	Total Unit Wt.	Saturated Unit Wt.	Cohesion (pcf)	Friction Intercept (psf)	Pore Angle (deg)	Pressure Param.	Pore Pressure Constant (psf)	Piez. Surface No.
1	132.0	140.0	.0	26.0	.00	.0	.0	0
2	125.0	133.0	2000.0	.0	.00	.0	.0	0
3	122.0	132.0	.0	35.0	.00	.0	.0	0

2 PIEZOMETRIC SURFACE(S) HAVE BEEN SPECIFIED

Unit Weight of Water = 62.40

Piezometric Surface No. 1 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	.00	86.00
2	100.00	86.00

Piezometric Surface No. 2 Specified by 2 Coordinate Points

Point No.	X-Water (ft)	Y-Water (ft)
1	100.00	86.00
2	240.00	86.00

Searching Routine Will Be Limited To An Area Defined By 1 Boundaries
Of Which The First 1 Boundaries Will Deflect Surfaces Upward

Boundary No.	X-Left (ft)	Y-Left (ft)	X-Right (ft)	Y-Right (ft)
1	.00	72.00	240.00	72.00

A Critical Failure Surface Searching Method, Using A Random Technique For Generating Circular Surfaces, Has Been Specified.

500 Trial Surfaces Have Been Generated.

10 Surfaces Initiate From Each Of 50 Points Equally Spaced
Along The Ground Surface Between X = 45.00 ft.
and X = 75.00 ft.

Each Surface Terminates Between X = 135.00 ft.
and X = 165.00 ft.

Unless Further Limitations Were Imposed, The Minimum Elevation
At Which A Surface Extends Is Y = .00 ft.

10.00 ft. Line Segments Define Each Trial Failure Surface.

Following Are Displayed The Ten Most Critical Of The Trial
Failure Surfaces Examined. They Are Ordered - Most Critical
First.

* * Safety Factors Are Calculated By The Modified Bishop Method * *

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	60.92	78.00
2	70.43	74.91
3	80.23	72.90
4	90.19	72.00
5	100.18	72.22
6	110.09	73.56
7	119.79	76.00
8	129.16	79.51
9	138.07	84.04
10	146.42	89.54
11	147.54	90.48

Circle Center At X = 93.2 ; Y = 161.2 and Radius, 89.3

*** 8.320 ***

Failure Surface Specified By 10 Coordinate Points

Point	X-Surf	Y-Surf
-------	--------	--------

No.	(ft)	(ft)
1	64.59	78.00
2	74.09	74.88
3	83.89	72.89
4	93.86	72.05
5	103.85	72.37
6	113.74	73.85
7	123.39	76.47
8	132.67	80.20
9	141.46	84.97
10	149.43	90.60

Circle Center At X = 96.1 ; Y = 158.0 and Radius, 86.0

*** 8.345 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	56.63	78.00
2	66.19	75.05
3	75.99	73.07
4	85.94	72.07
5	95.94	72.07
6	105.89	73.06
7	115.69	75.03
8	125.25	77.97
9	134.47	81.84
10	143.26	86.61
11	149.09	90.57

Circle Center At X = 91.0 ; Y = 172.4 and Radius, 100.5

*** 8.359 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	63.37	78.00
2	72.82	74.75
3	82.62	72.74
4	92.60	72.02
5	102.58	72.59
6	112.40	74.45

7	121.91	77.56
8	130.93	81.87
9	139.32	87.31
10	142.68	90.17

Circle Center At X = 93.2 ; Y = 149.3 and Radius, 77.3

*** 8.386 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	59.69	78.00
2	69.27	75.12
3	79.09	73.20
4	89.04	72.25
5	99.04	72.28
6	108.99	73.29
7	118.79	75.27
8	128.35	78.20
9	137.58	82.06
10	146.38	86.80
11	152.30	90.78

Circle Center At X = 93.7 ; Y = 174.0 and Radius, 101.9

*** 8.432 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	64.59	78.00
2	74.16	75.10
3	83.97	73.17
4	93.93	72.20
5	103.93	72.22
6	113.88	73.23
7	123.68	75.21
8	133.24	78.14
9	142.46	82.01
10	151.26	86.76
11	157.72	91.12

Circle Center At X = 98.7 ; Y = 173.5 and Radius, 101.4

*** 8.442 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	65.82	78.00
2	75.38	75.06
3	85.18	73.11
4	95.14	72.16
5	105.14	72.22
6	115.08	73.29
7	124.86	75.37
8	134.38	78.42
9	143.55	82.42
10	152.26	87.34
11	157.61	91.11

Circle Center At X = 99.5 ; Y = 170.7 and Radius, 98.6

*** 8.451 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	67.65	78.00
2	77.15	74.88
3	86.96	72.92
4	96.93	72.14
5	106.92	72.57
6	116.79	74.19
7	126.39	76.98
8	135.59	80.90
9	144.25	85.89
10	150.63	90.67

Circle Center At X = 98.4 ; Y = 155.5 and Radius, 83.4

*** 8.460 ***

Failure Surface Specified By 10 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	63.37	78.00
2	72.86	74.85
3	82.67	72.91
4	92.64	72.21
5	102.63	72.76
6	112.47	74.55
7	122.00	77.56
8	131.09	81.74
9	139.58	87.02
10	143.54	90.22

Circle Center At X = 93.2 ; Y = 152.1 and Radius, 79.9

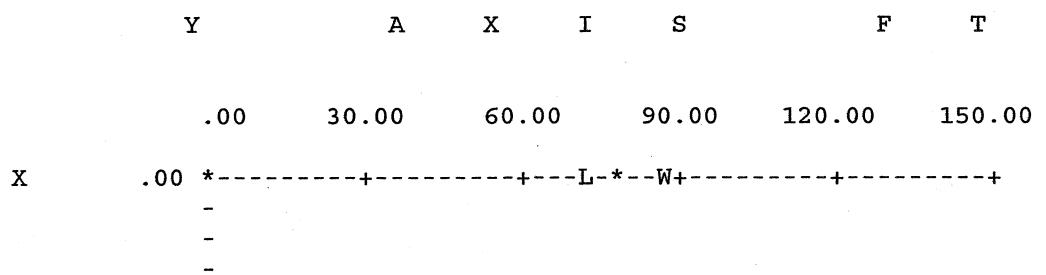
*** 8.466 ***

Failure Surface Specified By 11 Coordinate Points

Point No.	X-Surf (ft)	Y-Surf (ft)
1	54.18	78.00
2	63.73	75.01
3	73.52	73.00
4	83.47	72.02
5	93.47	72.05
6	103.42	73.11
7	113.20	75.18
8	122.72	78.24
9	131.88	82.26
10	140.58	87.19
11	144.97	90.31

Circle Center At X = 88.1 ; Y = 169.5 and Radius, 97.6

*** 8.469 ***



30.00 +

A 60.00 +

.3

.1

.32

.18

32*

1..

2...

X 90.00 +

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2...

1*... *

2....

51...

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I 120.00 +

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.51.*

.62...

.51**

7.31

S 150.00 +

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180.00 +

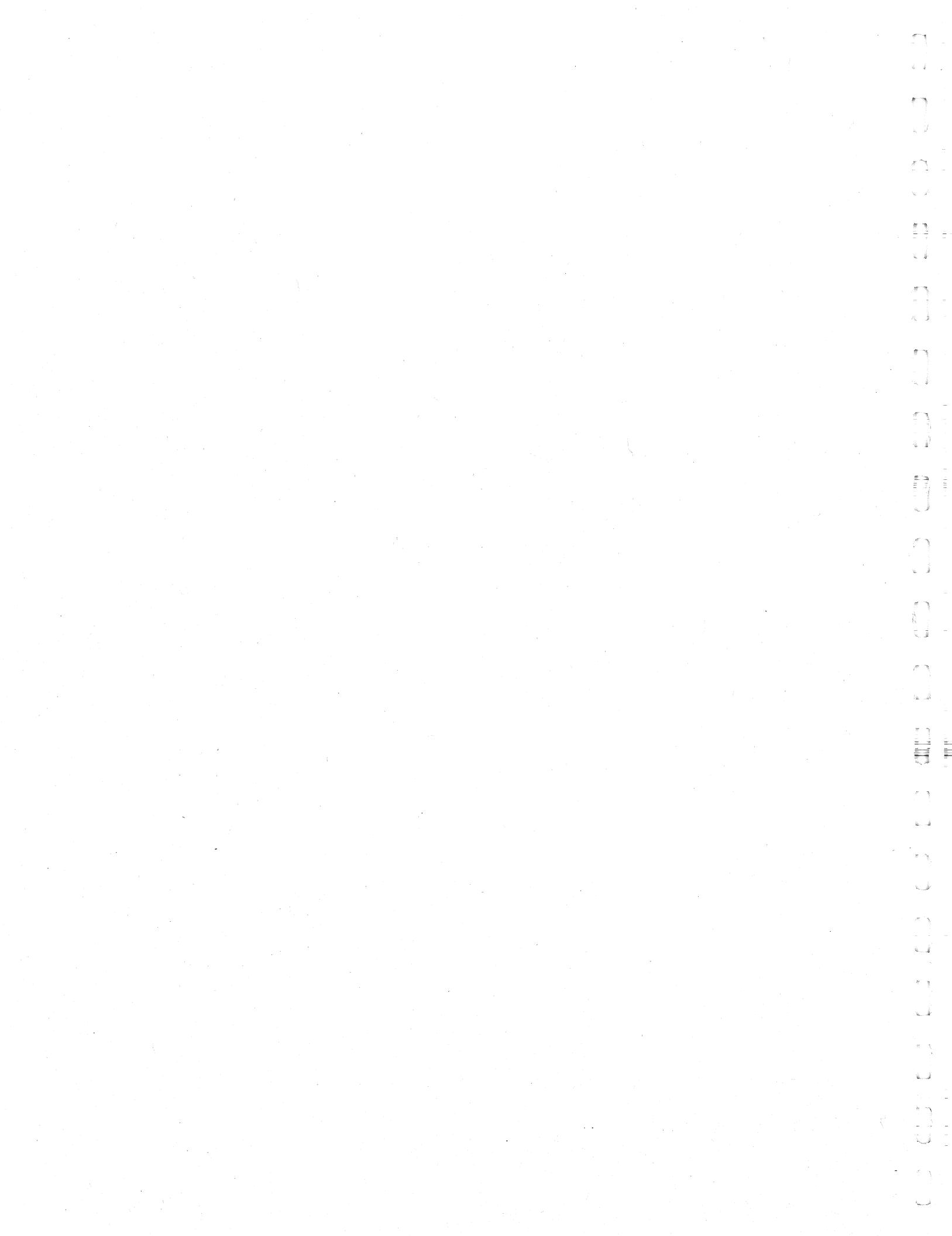
F 210.00 +

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T 240.00 +

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Appendix D
M-CACES Cost Estimate



Tue 18 May 2004
Eff. Date 11/10/03

U.S. Army Corps of Engineers
PROJECT CSSS19: Slag Area Cover Final Design - Continental Steel Superfund
Slag Area Cover Final Design

TIME 09:21:18
TITLE PAGE 1

Slag Area Cover Final Design
Continental Steel Superfund
Site (CSSS)
Kokomo, Indiana
Final Design Dated May 2004

Designed By: CH2M HILL
Estimated By: CH2M HILL

Prepared By: CH2M HILL

Preparation Date: 11/10/03
Effective Date of Pricing: 11/10/03

Sales Tax: 0.00%

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Tue 18 May 2004
Eff. Date 11/10/03
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U.S. Army Corps of Engineers
PROJECT CSS19: Slag Area Cover Final Design - Continental Steel Superfund
Slag Area Cover Final Design

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PROJECT DIRECT SUMMARY - Task.....1

SUMMARY PAGE

DETAILED ESTIMATE

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| 02. Field Management for Slag Area..... | 1 |
| 03. Mob Equip/Parking/Staging Areas..... | 1 |
| 04. Soil Erosion Sediment Control..... | 1 |
| 05. Site Development..... | 1 |
| 06. Demobilize..... | 1 |
| 07. Subcontractor Costs..... | 1 |
| 08. Project Management Costs..... | 1 |

No Backup Reports..

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Tue 18 May 2004
Eff. Date 11/10/03
DETAILED ESTIMATE

U.S. Army Corps of Engineers
PROJECT CSSS19: Slag Area Cover Final - Continental Steel Superfund
Slag Area Cover Final Design
01. Preconstruction Submittals

TIME 09:21:18
DETAIL PAGE 1

	QUANTITY	UNIT	COST	TOTAL COST
Preconstruction Submittals				
Payment/Performance Bonds	1.00	IS	20000.00	20,000
Safety Supply Allowance	1.00	IS	2500.00	2,500
Builder's Risk Insurance	1.00	IS	5000.00	5,000
Submittals	1.00	IS	2500.00	2,500
Home Office Engineering Support	1.00	IS	1500.00	1,500
Field Management for Slag Area				
Project Manager	2.00	MO	9580.00	19,160
Superintendent	2.00	MO	7750.00	15,500
Field Office/Utils/Porta-Johns	2.00	MO	2975.00	5,950
Fuel Storage	2.00	MO	250.00	500
Fire Protection	1.00	IS	500.00	500
Spill Prevention/Emergy Response	1.00	IS	2000.00	2,000
Site Vehicles	2.00	MO	2000.00	4,000
Mobilize Equipment	1.00	IS	10000.00	10,000
Soil Erosion Sediment Control				
Install Silt Fence-SitePerimeter	3000.00	LP	2.70	8,100
Straw Bales (Sediment Control)	1.00	IS	1000.00	1,000
Site Development				
Site Preparation	2.00	AC	5000.00	10,000
Rough Grading	3600.00	CY	6.00	21,600
Load,Haul & Spread Grade Material	85500	CY	5.75	491,625
Import Fill Material	29400	TN	4.00	117,600
Place/Grade Fill Material	19600	CY	2.00	39,200
Dust Control	2.00	MO	4500.00	9,000
Orange Safety Fence	400000	SF	0.11	44,000
Import Topsoil Material	6000.00	CY	6.00	36,000
Place Topsoil Material	6000.00	CY	3.00	18,000
Hydroseeding	9.00	AC	1400.00	12,600
Erosion Matting	1900.00	SY	1.00	1,900
Line and Grade Survey	2.00	IS	2000.00	4,000
Demobilize				
Record Dwg/Topo Information	1.00	MO	2000.00	2,000
Project Closeout	1.00	IS	2500.00	2,500
Demobilize Equipment	1.00	IS	5000.00	5,000
Subcontractor Costs				
Subcontractor G&A (11%)	1.00	IS	100455.85	100,456
Subcontractor Fee (4%)	1.00	IS	36529.40	36,529
Project Management Costs				
Engineering Project Management	1.00	IS	91324.00	91,324
Contingency (15%)	1.00	IS	13985.00	136,985
TOTAL Slag Area Cover Final Design	1.00	EA	1278529.25	1,278,529



Tue 18 May 2004
Eff. Date 11/10/03

U.S. Army Corps of Engineers
PROJECT CSSS19: Slag Area Cover Final Design - Continental Steel Superfund
Slag Area Cover Final Design
** PROJECT DIRECT SUMMARY - Task **

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SUMMARY PAGE 1

	DESCRIPTION	QUANTITY UOM	UNIT COST	TOTAL COST
01	Preconstruction Submittals	1.00 EA	31500.00	31,500
02	Field Management for Slag Area	1.00 EA	47610.00	47,610
03	Mob Equip/Parking/Staging Areas	1.00 EA	10000.00	10,000
04	Soil Erosion Sediment Control	1.00 EA	9100.00	9,100
05	Site Development	1.00 EA	805525.00	805,525
06	Demobilize	1.00 EA	9500.00	9,500
07	Subcontractor Costs	1.00 EA	116985.25	116,985
08	Project Management Costs	1.00 EA	228309.00	228,309
	TOTAL Slag Area Cover Final Design	1.00 EA	1278529.25	1,278,529

